Technology

GOAL FOR 2020

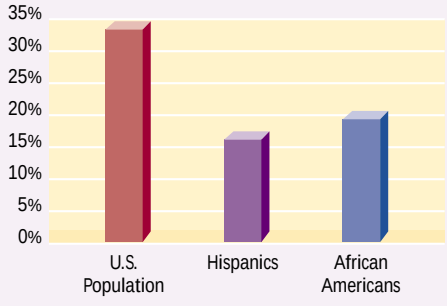
Ensure that technology infrastructure is available to maximize the benefits of the knowledge-based economy and to increase the quality of life for all Californians.

"Telecommunications technology presents opportunities never before imagined for every community and its citizens. Education, health, public safety and public access to government are only a few applications where information holds the potential to improve daily lives and empower communities. These opportunities will only be achieved by competitive, affordable, accessible services available to all communities and its citizens regardless of size, location or socio-economic factors."

—Telecommunication 101 Infrastructure Partnership Project, Bay Area Economic Forum

Today's Issues

Telecommunications infrastructure and technology workers are the foundation of the information-based economy. California's leadership position in the new economy and its ability to attract intellectual and financial capital is dependent upon a network of infrastructure elements—of which the ability to access and use advanced technology is a key component. Information technology (IT) also has the potential to help address many of the challenges facing California today—transportation, safety, economic growth, education, health care, community development, emergency preparedness and others. While California has emerged as the center of the new economy, the opportunities provided by technology must be expanded to a larger share of our citizens.



Source: "Falling Through the Net," October 2000, U.S. Department of Commerce

THE DIGITAL DIVIDE

Internet access and usage correlates to income and education levels and is divided along socioeconomic and, in some cases, ethnic and cultural lines. This trend, the "digital divide," is generally defined as the measurable and growing gap between different communities and individuals in terms of access to the Internet and other productive technologies, educational achievement, and employment opportunities. California's existing telecommunications network provides Internet connectivity with a computer, software and an Internet Service

"There's been so much focus on the boxes and wires to connect the Internet that we almost forgot to ask what people are getting once they connect. We found a strong desire among people for practical, local information about their neighborhoods that seems to fly in the face of the way the Internet is moving in terms of national portals."

Wendy Lazarus
Founder of
the Children's Partnership

Some California Technology Facts:

- **46% of households with income of less than $40,000 have Internet access, whereas 81% of households with income of more than $80,000 have Internet access.**
- **Californians are more likely than U.S. adults to use the Internet, 61% to 56%, however, Central Valley residents trail at 50%.**
- **Latinos are less likely than non-Hispanic whites, 45% vs. 69%, to use the Internet.**
- **Three in four Latinos with college degrees, 78%, use the Internet, similar to all Californians with college degrees.**
- **According to the national study, "Falling Through the Net," people who have a disability were only half as likely to live in homes with Internet access than those without a disability. In addition, only 25% of people without a disability have never used a computer, whereas almost 60% of people with at least one type of disability have never used a computer.**


PHOTO CREDIT: JEFFREY SPENCER

CASE STUDY

Community Technology Centers: Computers in Our Future (CIOF)

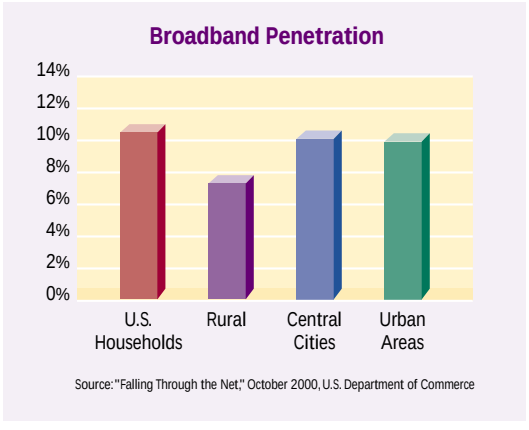
CIOF operates in 11 communities across California providing technology access and training for 24,000 low income residents. CIOF has succeeded at reaching those who have been bypassed by technology—80% of program participants are people of color, and 60% of adult users have a high school education or less. With seed funding from the California Wellness Foundation, the program is also financed with over $1.6 million in corporate support as well as city and county funds.

Source: Richard Chabran, University of California, Riverside

Provider (ISP). However, for many Californians, a lack of skills, knowledge, financial resources or a disability limits accessibility. Limited culturally diverse content and applications on the Internet are also cited as reasons for decreased participation rates by some groups. In addition, high-speed broadband service, such as Digital Subscriber Line (DSL), is often required to achieve the full benefit of the Internet. Currently, access to broadband service is focused on central cities and urban areas, which poses a challenge to rural areas.

DEVELOPING THE PHYSICAL INFRASTRUCTURE

Infrastructure development is essential to maintaining and strengthening California's leadership in IT and to ensuring that all its citizens and industries reap IT's potential benefits. Telecommunications and technology infrastructure serve as the data highway for the knowledge-based economy. Today's infrastructure has resulted primarily from private sector build out. Differing speeds of data access through land-line connections and wireless technology exist in different geographic locations. More users and businesses are coming online everyday to become active participants in the knowledge-based economy, and as new network-based services are deployed, there is a rapidly growing need for business and private users to be connected anytime, anywhere—at home, at work, and while on the move. These trends will result in an exponential growth in data traffic and data speed requirements. Meeting this demand will require additional wire-line connections as well as continued development of wireless Internet infrastructure.



To address these infrastructure needs, new types of networks will be required. Metropolitan Area Networks (MANs) connect and integrate business, government, non-governmental agencies, schools, and residents. These high-speed networks have the capability to be customized by the communities they serve. Dispersed Area Networks (DANs) connect Californians in rural, tribal and other geographically dispersed areas throughout the State. Both types of networks have potential to increase telecommunications access to many more Californians.

PHOTO CREDIT: FRESNO, CALIFORNIA, CENTER FOR ADVANCED RESEARCH AND TECHNOLOGY

"*Information literacy: the ability to access, interpret, and respond to information.*"

Digital Divide Network

E-GOVERNMENT

California has become a national leader in the provision of online government services. The State government must continue to move "online" to increase service choices and reduce costs through e-Government. These programs allow Californians to find information independently and to interact with their government outside of business hours. There is also potential to reduce traffic congestion and save time and energy.

ENCOURAGING ENTREPRENEURSHIP

California's leadership in the global economy is based on a long history of innovation and entrepreneurship. Entrepreneurship is fostered initially through strong educational institutions, propelled by robust public and private sector applied research efforts, and solidified by a nurturing business climate. Continued and increasing support for each of these components will provide the platform for future innovations and entrepreneurial ventures.

Actions Taken

- **In 2000, the Governor and Legislature funded $215 million to improve access to computers and technology for students in the classroom; over $350 million to complete implementation of the Digital High School program; and $425 million to be used, at each school district's discretion, toward providing teacher training, connectivity, computers, or other facility improvements in California's public schools.**

- **In January of 2001, Governor Davis launched My California, a dynamic, customizable, fully integrated web portal whose architecture provides a framework for enterprise development within state government and gives immediate access to government information and a suite of new applications.**

- **In 2000, the Governor provided $32 million to expand the Internet2 to K–12 schools, thereby creating the most advanced K–20 education network in the world.**

- **In 2000-2001, the Legislature approved the Governor's proposal to provide $75 million annually over four years to the University of California to launch three California Institutes for Science and Innovation at several U.C. campuses. In 2001-2002, the Legislature approved the Governor's proposal to add a fourth institute which would receive funding over the subsequent four years.**

PHOTO CREDIT: STEPHEN P. TEALE DATA CENTER

"My California" Homepage, State of California

CASE STUDY

Providing Internet Access through Libraries: InFoPeople

The California State Library developed the InFoPeople project more than 5 years ago and began installing Internet enabled workstations in public libraries. By the end of the 5th year, 510 of California's 1060 public library sites have one or more InFoPeople workstations. InFoPeople also provides training for library staff and community partners through mandatory workshops on general computer and Internet use. It also provides a Distance Education Program for rural library sites.

Source: The California State Library

CASE STUDY

Building the Digital Network Infrastructure: City of Chicago, Illinois

The City of Chicago recognized the importance of supplying high speed bandwidth to all classes of users with sufficient network capacity. The Metropolitan Planning Council identified incentives and strategies to encourage new investment in a consistent, productive manner. They include:

- **Tax incentives such as accelerated depreciation and tax credits for service providers to build infrastructure in underserved areas**
- **Use of Transportation Investment Funds funds to encourage retrofitting of existing buildings into high tech facilities**
- **Public-private community partnerships to share network infrastructure across government, health care organizations, educational institutions, libraries and municipalities**
- **Cost sharing techniques, such as leveraging publicly owned easements to lower costs, bundling needs of multiple communities in a single procurement, expanding infrastructure cost sharing programs such as Special Service Area arrangements (SSAs)**
- **Information resources to communities interested in increasing telecommunications infrastructure investment**

Source: The Digital Network Infrastructure and Metropolitan Chicago, Northwestern University, September, 1998

Investing for California's Future

The Commission has identified the following priorities for meeting our technology needs:

- *Creating fair and competitive markets and regulatory conditions to protect consumers, encourage private sector build out, and nurture entrepreneurial ventures*
- *Encouraging investments in the Internet backbone and encouraging markets to establish minimum broadband standards*
- *Increasing public sector service options through technology*
- *Continuing to facilitate public and private sector partnerships with academia to bring promising new technologies to market*
- *Providing Internet access and opportunity for technology skill development to the general public through community-based resources, such as schools, libraries and community technology centers*

Recommended Options

The following recommended options will help achieve our priorities:

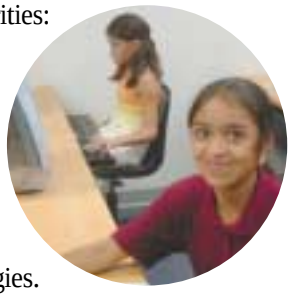


PHOTO CREDIT: J. HURTADO/ COMMUNITY DIGITAL INITIATIVE AT UNIVERSITY OF CALIFORNIA, RIVERSIDE

FINANCING AND FISCAL POLICY

- Create tax and regulatory incentives to deploy infrastructure to rural and economically disadvantaged areas.
- Create public-private partnerships that result in affordable access to advanced telecommunications and network technologies.
- Fund research infrastructure for higher education institutions to facilitate training and create new opportunities for scientific advances.
- Continue to use the California Teleconnect Fund to support discounts for advanced services to schools and libraries.

IMPROVED PLANNING

- Develop a Statewide business plan for integrating advanced technology into all aspects of the public infrastructure, including but not limited to educational facilities, government buildings, transportation systems and public rights-of-way.
- Incorporate technology and telecommunications requirements and ensure facilities flexibility in the modernization and development plans for State facilities.
- Incorporate maintenance requirements, upgrades and training into technology planning and funding.
- Integrate Geographical Information System (GIS) as a state and local planning tool for the construction and maintenance of public infrastructure.

BARRIER REMOVAL

- Resolve the issues between local governments, service providers and communities related to rights-of-way and construction associated with infrastructure development.
- Work with the Federal Communications Commission and California Public Utilities Commission to facilitate interconnection of networks and promote competition to accelerate deployment of advanced services.
- Work with private sector partners to make it simple and affordable for all community organizations to provide content and services.
- Promote social policies that recognize that access to services via the Internet, including hardware, software, education and training, is important for all residents and businesses in California.

IMPROVED IMPLEMENTATION AND USE

- Complete efforts to ensure all classrooms have Internet access as started by the Digital High School program.
- Offer Internet access and technology training opportunities in community-centered locations, such as libraries, schools and community technology centers.
- Promote access to the Internet in the home.
- Encourage the design of technologies for easy use by children, the elderly, and persons with disabilities.
- Establish the State government as the leader and role model in implementing technology applications to improve the access to and efficiency of government services. Create "magnet" public sector Internet destinations, such as public benefits registration, to speed the exposure to Internet technologies and development of skills in the general population.
- Work with private and public sector partners to increase availability and simplify access to community resources and information (e.g., access to local government, bill payment for local services, and community events listing).
- Use public-private sector partnerships to: cross-fertilize technology ideas, knowledge and skills; and foster commercial viability of innovative solutions.
- Encourage the development of MANs and DANs either by private sector or nonprofit partnerships, possibly facilitated by e-rate funds.
- Deploy reliable and integrated public sector technology systems to ensure effective data management and communications for uses such as: continuous access in emergency situations and connectivity of law enforcement and justice systems.
- Adopt State standards and guidelines for use of technology in State facilities.

CASE STUDY

Computer Recycling Corporation (CRC)
Santa Clara, California

The CRC has collected, refurbished and redistributed over 20,000 computers to schools in the San Francisco Bay area, since its founding. CRC works with volunteers, students, interns and California Department of Correction inmates. They accept donations of computers (working or not), books and software from individuals and companies throughout California. They also provide technical training for high school and college students, participate in national collection efforts and offer sales of surplus parts to the general public. Their Computers and Education project provides loaner and free computers to schools and nonprofits. The nonprofit agency has affiliate locations in Santa Clara, Santa Rosa, San Francisco and Palm Springs.

Source: Computer Recycling Corporation, www.crc.org

Community Digital Initiative at University of California, Riverside

PHOTO CREDIT: J. HURTADO/COMMUNITY DIGITAL INITIATIVE AT UNIVERSITY OF CALIFORNIA, RIVERSIDE